PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	The Four Delays of Child Mortality in Rwanda: A Mixed-Methods Analysis of Verbal Social Autopsies
AUTHORS	Roder-DeWan, Sanam; Gupta, Neil; Kagabo, Daniel; Habumugisha, Lameck; Nahimana, Evrard; Mugeni, Catherine; Bucyana, Tatien; Hirschhorn, Lisa

VERSION 1 - REVIEW

REVIEWER	Alyssa Sharkey UNICEF New York
REVIEW RETURNED	03-Dec-2018

GENERAL COMMENTS	This paper was extremely well written and represents an important contribution to the literature with the conceptualization of the Phase 4 delay. I very much enjoyed reading it. My only concern is that the conclusion that Phase 2 delays aren't important isn't completely backed up in the paper. In particular, on page 9, line 23 indicates that 'many waited to travel to morning' which doesn't seem to be further investigated. Is it warranted to say that this is not a challenge? I had no other concerns although did find several typos throughout the manuscript: pg 4 (line 11), 5 (line 9), 7 (line 13), 12 (line 29), 15 (conclusion first paragraph the font is different). Also, it is not clear to the reader what the term 'acute abdomen' refers to so you may wish to clarify this.

REVIEWER	Dr. Helle Samuelsen Department of Anthropology, University of Copenhagen Denmark
REVIEW RETURNED	31-Dec-2018

GENERAL COMMENTS	This is a very interesting and important ms. The use of VSA and the identification of a fourth type of delay is relevant for an improved understanding of child mortality in poor communities. The structure of the ms. is clear although a few sentences remain a bit unexplained, such as the following: "This age range was chosen because it encompasses children with shared developmental characteristics, such as physical mobility, clinical characteristics and illness patterns and social experirences, such

	as not yet being in the school system" (p. 5 line 15-20). Which shared clinical characteristics and illness patterns do the authors refer to here? I have the following specific comments: 1. On p. 7 the authors explain that the selection of variables were chosen on the basis of hypotheses - which hypotheses, did they work with? 2. Is it ethically ok only to work with a three week mourning period? (some interviews with caretakers were conducted only three weeks after a child death) 3. On p. 10 the authors again mention "a hypothesis-driven mixed methods analysis" - but we do not hear what the hypotheses were. 4. We do not hear much about the socio-cultural context. It would strengthen the ms. if the authors provided more information about the living conditions of the families affected by child death. 5. The authors speak of Traditional Medicine as one Explanatory Model, but is TM really one coherent model, or is TM here, as in many other places, an assemblage of different explanatory models? 6.I am not absolutely sure that this ms presents the perspective of health system's users (p. 14 line 20). It would strengthen the ms. if more coherent narratives were presented as part of the findings (not only presented as excerpts in the tables) - would it be possible to present a couple of typical cases, where we really get an impression of the caretakers' considerations, doubts, decision-makings and reflections? 7. A final question. Did the authors come across cases where dying children were actually discharged from the health facility when no treatment options were available?

VERSION 1 – AUTHOR RESPONSE

Reviewer 1:

Comment: This paper was extremely well written and represents an important contribution to the literature with the conceptualization of the Phase 4 delay. I very much enjoyed reading it.

Response: Thank you very much!

Comment: My only concern is that the conclusion that Phase 2 delays aren't important isn't completely backed up in the paper. In particular, on page 9, line 23 indicates that 'many waited to travel to morning' which doesn't seem to be further investigated. Is it warranted to say that this is not a challenge?

Response: Thank you for raising this point. We were surprised to hear so little about Phase 2 delays and suspect that “waiting until morning” is related to difficulties with transport overnight. Unfortunately, the narratives give us no language on why caregivers waited until morning. We have revised the manuscript in several places to temper the conclusion on phase 2 delays in light of this comment. Specifically, the conclusion in the abstract (Pg 2, line 29) now reads: “…delays in reaching a facility (phase 2) were rarely discussed.” On pg 9 line 21 we added, “These informants may be referring to phase 2 delays, but this cannot be determined from the narratives.” On pg 12, line 10-12 we added, Our respondents rarely mentioned challenges in reaching a facility (phase 2), though it is unclear whether the common experience of waiting until morning to travel was related to difficulty securing transport.” On pg 16 line 11, we changed the word “experienced” to “described” to signal that we can only report on what was shared during the interviews.

Comment: I had no other concerns although did find several typos throughout the manuscript: pg 4 (line 11), 5 (line 9), 7 (line 13), 12 (line 29), 15 (conclusion first paragraph the font is different). Also, it is not clear to the reader what the term 'acute abdomen' refers to so you may wish to clarify this.

Response: Many thanks for pointing these out. These corrections and clarification have been made. On pg 8, line 13 we added a brief definition of acute abdomen: “severe abdominal pain usually requiring surgery”

Reviewer 2:

Comment: This is a very interesting and important ms. The use of VSA and the identification of a fourth type of delay is relevant for an improved understanding of child mortality in poor communities.

Response: Much appreciated, thank you.

Comment: The structure of the ms. is clear although a few sentences remain a bit unexplained, such as the following: "This age range was chosen because it encompasses children with shared developmental characteristics, such as physical mobility, clinical characteristics and illness patterns and social experiences, such as not yet being in the school system" (p. 5 line 15-20). Which shared clinical characteristics and illness patterns do the authors refer to here?

Response: Thank you for the comments. This sentence has been clarified on page 5 (line 15 and 16) to read, “This age range was chosen because it includes children with shared developmental characteristics (e.g. the ability to crawl/walk), clinical characteristics (e.g. causes of pneumonia), and social experiences (e.g. not being in primary school).”

Comment: On p. 7 the authors explain that the selection of variables were chosen on the basis of hypotheses - which hypotheses, did they work with? On p. 10 the authors again mention "a hypothesis-driven mixed methods analysis" - but we do not hear what the hypotheses were.

Response: Thank you for pointing out this omission. Several of the hypotheses that we tested are now included on page 7 (16-19): “Hypotheses included 1) maternal education impacts care-seeking by giving caregivers more access to accurate health information, 2) children who died at home experience more phase 1 delays, 3) less common causes of death are associated with more phase 3 delays.”

Comment: Is it ethically ok only to work with a three week mourning period? (some interviews with caretakers were conducted only three weeks after a child death)

Response: This is an important question that was discussed by our international research team when preparing for this study. The formal mourning period in Rwanda (ikiriyo) lasts for 3-7 days, but further guidance on the appropriate waiting period is limited. Studies from other countries suggest that a few weeks is appropriate to strike a balance between respecting bereavement and remembering details of the death (Dwyer and Jackson 2010, Bentley and O'Connor 2015). Three weeks was selected based on the literature and input from Rwandan colleagues. Additionally, our research training addressed this at length and emphasized the need to allow potential informants to decline participation. On pg 5 (line 9-12), we added this text: “The minimum waiting period of 3 weeks was selected considering the Rwandan custom of a formal 1-week mourning period and literature from other countries suggesting that several weeks is an appropriate delay24,25. Importantly, families could decline participation and could choose a time for the interview if they consented.”

Comment: We do not hear much about the socio-cultural context. It would strengthen the ms. if the authors provided more information about the living conditions of the families affected by child death.

Response: Thank you for this suggestion. The following addition has been made on page 4 (lines 15-21): “The catchment area for this study is rural and the majority of families rely on subsistence agriculture. Paved roads connect the main towns, and unpaved roads extend to most communities. Homes are predominantly made of natural materials such as earth and thatch and few communities have access to electricity. According to the 2014 Rwandan Demographic and Health Survey, nearly 40% of the population lives below the poverty line, though nearly all women in Kirehe and Kayonza work in agriculture. Educational attainment is low in both areas, with most women not having completed primary school (National Institute of Statistics of, Ministry of et al. 2016).”

Comment: The authors speak of Traditional Medicine as one Explanatory Model, but is TM really one coherent model, or is TM here, as in many other places, an assemblage of different explanatory models?

Response: Thank you for this comment. We agree that we are probably seeing multiple explanatory models at play together. We changed the language around explanatory models to emphasize that each individual has his/her own explanatory model and that TM options can inform these. The conclusion in the abstract (pg 2 line 32) now reads: “Improving quality of care, especially provider capacity to communicate danger signs/treatment plans and promote adherence in the presence of alternative explanatory models informed by traditional medicine could help prevent childhood deaths.” On pg 14 line 7 we now say: “Having TM as an alternative to shape an individual’s explanatory model 34 was particularly important when caregivers were not satisfied with the care that they received at the FHS.”

Comment: I am not absolutely sure that this ms presents the perspective of health system's users (p. 14 line 20). It would strengthen the ms. if more coherent narratives were presented as part of the findings (not only presented as excerpts in the tables) - would it be possible to present a couple of typical cases, where we really get an impression of the caretakers' considerations, doubts, decision-makings and reflections?

Response: This is a helpful suggestion. We have added an illustrative case (referenced on pg 13 line 4 and included on pg 30,31 to increase the voice of the user. Due to word constraints and the length of the interviews only one such case is included.

Comment: Did the authors come across cases where dying children were actually discharged from the health facility when no treatment options were available?

Response: Interesting question. No, our narratives only describe caregivers taking their dying children home when they suspect that no further treatment is available. We did not identify any reports of children being discharged because of no further options.

VERSION 2 – REVIEW

REVIEWER	Alyssa Sharkey UNICEF, USA
REVIEW RETURNED	21-Feb-2019

GENERAL COMMENTS	The authors have done a nice job addressing previous concerns. This manuscript is now ready for publication in my view.